## p63 Regulates Olfactory Stem Cell Self-Renewal and Differentiation.

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**Public Summary:**
The olfactory epithelium is a sensory neuroepithelium that supports adult neurogenesis and tissue regeneration following injury, making it an excellent model for investigating neural stem cell regulation in vivo. Previous studies have identified the horizontal basal cell (HBC) as the neural stem cell of the postnatal olfactory epithelium. However, the molecules and pathways regulating HBC self-renewal and differentiation are unknown. In the present study, we demonstrate that the transcription factor p63, a member of the p53 tumor suppressor gene family known to regulate stem cell dynamics in other epithelia, is highly enriched in HBCs. We show that p63 is required cell autonomously for olfactory stem cell renewal and further demonstrate that p63 functions to repress HBC differentiation. These results provide critical insight into the genetic regulation of the olfactory stem cell in vivo and more generally provide an entree toward understanding the coordination of stem cell self-renewal and differentiation.

**Scientific Abstract:**
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